

Fresh Concrete Field Sampling and Testing Equipment List

This attachment includes a list of equipment needed to perform the ACI Field Grade 1 ASTM test methods and California Test equivalents. Reference each test method for additional details on equipment size, dimensions, and accuracy. Note that the titles displayed are for the American Society for Testing and Materials (ASTM) tests.

For all the tests below, it is recommended to have:

- Shovel
- Wheelbarrow
- Sponge
- 5-gallon bucket for water

ASTM C138/[California Test 518](#): Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete:

- Scale (220 lb x 0.1 lb)
- Calibrated Vessel with known volume (typically 0.5 cf)
- Round Bottom Scoop
- 24" Long x 5/8" diameter Tamping Rod (6 x 12 cylinders and beams)
- Rubber Mallet
- 12" x 1/2" Strike Off Plate or Graduated Strike Off Bar
- Vibrator is optional but not needed

ASTM C231/[California Test 504](#): Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

- Type B Concrete Air Meter and Assembly
- Calibrated Vessel (typically 0.5 cf)
- 24" Long x 5/8" diameter Tamping Rod
- 3 oz Bulb Syringe
- Rubber Mallet
- Round Bottom Scoop
- 12" x 1/2" Strike Off Plate
- Graduated Strike Off Bar

- Trowel
- Vibrator is optional but not needed

ASTM C31/[California Test 540](#): Standard Practice for Making and Curing Concrete Test Specimens in the Field:

- Cylinder or Beam molds as needed
- 24" Long x 5/8" diameter Tamping Rod (6 x 12 cylinders and beams)
- 12" long x 3/8" diameter Tamping Rod (4 x 8 cylinders)
- Rubber Mallet
- Trowel or Hand Float
- Round Bottom Scoop
- Vibrator is optional but not needed
- Per ASTM C31, you are required to measure temperature, slump, and air content when making concrete test specimens so additional equipment is required to perform those tests

ASTM C143/[California Test 556](#): Standard Test Method for Slump of Hydraulic-Cement Concrete:

- Slump Cone Funnel
- Metal Slump Cone Base or any flat and level non-absorbent surface large enough for the anticipated slump
- Round Bottom Scoop
- 24" Long x 5/8" diameter Tamping Rod
- Measuring tool accurate to the nearest 1/4"

ASTM C173/[California Test 543](#): Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method:

- Volumetric Roll-a-Meter
- Rubber Mallet
- 24" Long x 5/8" diameter Tamping Rod
- Strike Off Bar
- Bulb Syringe
- Funnel and measuring cup

- Isopropyl Alcohol (70% alcohol by volume) and Distilled Water
- Round Bottom Scoop

ASTM C1064/[California Test 557](#): Standard Test Method for Temperature of Freshly Mixed Hydraulic Cement Concrete:

- Thermometer which can measure to the nearest one degree
- Container